

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

SPECIAL.

Issued February 13, 1915.

United States Department of Agriculture,

OFFICE OF THE SECRETARY.

COWPEAS IN THE COTTON BELT.

By W. J. MORSE,

Scientific Assistant, Forage-Crop Investigations, Bureau of Plant Industry.

INTRODUCTION.

The cowpea is at the present time the best known and most extensively grown leguminous crop in the cotton belt. Its value for hay, grazing, catch and cover crops, and for soil improvement is well known and thoroughly appreciated by farmers. The feeding value of the forage has long been recognized, and it is used for all kinds of live stock. Cowpea hay has a high percentage of digestible protein and is fully as valuable for feed as red-clover hay. As a green-manure crop this plant greatly increases the humus and nitrogen content of the soil. The seeds of the cowpea are also commonly employed for human food, being used in the pod, shelled green, and shelled dried.

On a very large proportion of the area planted to cowpeas no effort is made to harvest the seed. Moreover, a large percentage of the seed harvested is picked by hand. Under these conditions the increased culture of the cowpea has brought about a high price of seed, which without doubt has retarded a greater use of the crop. The demand for seed of well-known varieties has kept the price in recent years so high as to make cowpea seed production a most profitable line of farming. The harvesting of seed by machinery is now carried on very successfully in several communities. Localities well suited to the production of cowpea seed will find it highly profitable to grow seed on a large scale, especially if the best machinery for handling the crop is employed.

SOIL AND FERTILIZER ADAPTATIONS.

The cowpea can be depended upon to succeed on practically all types of well-drained soils, thriving on poorer soils than most other cultivated legumes. A soil of medium fertility is considered best for

NOTE.—Intended for farmers in the cotton belt who desire to diversify their farming because of the economic crisis which adversely affects the cotton crop at this time.

the production of this crop. Sandy and sandy-loam soils are most suitable for seed production, while the heavier soils produce more herbage and less seed. The best results on soils of rather low fertility will be had by applying 300 to 400 pounds of acid phosphate and 100 pounds of potash to the acre.

SOIL PREPARATION.

Although the cowpea will grow under rather unfavorable conditions of soil preparation, the best results are to be obtained on well-prepared land. The same preparation and cultivation ordinarily practiced for corn are recommended for cowpeas.

TIME OF PLANTING.

Planting should be done when the soil is warm and not too wet, as the seed will then germinate very readily. Very early plantings require a greater length of time for maturity than late plantings and are of advantage only where the crop is to be used for soiling, green manuring, or pasturing. Cowpeas may be planted as late as mid-summer for hay or green manure.

METHOD AND RATE OF PLANTING.

The method of planting depends upon the purpose for which the crop is grown. For the production of seed, the best practice is to plant in rows about 36 inches apart, using from 20 to 30 pounds of seed to the acre. When the crop is to be used for forage or soil improvement, a broadcasted or drilled crop is preferable, using from 60 to 90 pounds of seed to the acre. In regions of light rainfall thin planting is recommended. Where there is ample moisture thicker planting is desirable. A cotton planter may be used in row plantings, or, if available, a grain drill, the width of rows being spaced by covering the feed cups not to be used. Cultivation should begin as soon as the plants appear above the ground, and the crop should receive at least three cultivations.

HARVESTING.

The time of harvesting depends primarily upon the use to be made of the crop. For hay, cowpeas should be cut about the time the first pods begin to turn yellow. Where seed is the object, cutting should be delayed until one-half or more of the pods are mature. In harvesting for seed production a mower with a bunching attachment is most satisfactory, but the self-rake reaper can be used to advantage.

THRASHING.

Thrashing may be done at any time after the pods are thoroughly dry. When grown in quantity and picked, the pods are commonly thrashed with a pea huller. When the crop has been cured like hay

it may be thrashed with an ordinary grain thrasher by removing some of the concaves and running the cylinder at a low and even speed (about 500 revolutions a minute) to prevent splitting the peas. Special pea and bean separators are now on the market and do excellent work. In localities favorable for seed production an investment by several growers in a special pea separator would be of great advantage and economy.

STORING SEED.

Cowpea seed can be stored for a considerable length of time without much danger of loss of germination. It is, however, subject to attack by the pea weevil and is often considerably damaged in storage by this insect. By treating the seed at the time of storing with carbon bisulphid, using one-half ounce of this substance to a bushel of peas, the weevil is easily held in check. The seed should be placed in an air-tight box or vessel, the bisulphid in a small open dish on top of the seed, and a covering thrown over the surface of the peas to confine the gas. The vapor is highly inflammable, and no fire of any nature should be allowed where this substance is being used. It may be necessary to follow with a second treatment a few weeks later, as it often happens that some forms of the weevil are not checked by the first treatment.

VARIETIES.

Although there are a large number of varieties of cowpeas grown, comparatively few are of prime importance. Some of the extensively cultivated varieties are known under various names in different sections of the country. Varieties of cowpeas are distinguished most readily by the color and size of the seed, though they differ in habit, maturity, disease resistance, etc. The use to be made of the crop should determine to a large extent the variety to be selected. The Groit, Brabham, New Era, Whippoorwill, Iron, and Early Buff varieties are most suitable for seed production and also are very desirable for hay production. The Unknown, or Wonderful, and most varieties of the Clay, Red Ripper, and Black groups are somewhat late and vining varieties, rather poor in seed yields, and are more suited for forage and green manure. The Brabham and Iron varieties should be grown wherever wilt and root-knot are prevalent, as these varieties are practically immune to these diseases. Varieties of the Blackeye and Crowder groups and those with white seeds are used most commonly for table purposes.

ROTATIONS.

The cowpea succeeds under so many different conditions that it can be used in almost any system of rotation. The place usually assigned to cowpeas is that of a partial crop planted between the corn

rows at the last cultivation or that of a second crop on land where oats, wheat, or rye have been harvested.

MIXTURES.

Cowpeas for hay production are very advantageously grown in mixture with other crops, giving a greater variety and larger yield of forage. Corn is also used very extensively in mixture with cowpeas, but only to a small extent for hay purposes. The most widely used crop is sorghum, including both the sweet sorghums and kafirs. Other crops that can be used in mixture with cowpeas are soy beans, Sudan grass, and Johnson grass.

COWPEA HAY.

Well-cured cowpea hay is a most valuable and nutritious dry forage, being nearly equal to wheat bran in feeding value. It is satisfactory for work stock and for beef or milk production, and it gives good results when fed to poultry. Cowpea hay is rather difficult to cure, especially if the weather is not favorable. Although there are many methods of curing the hay, two are commonly used. One method, suitable for any season, requires the use of poles with cross-pieces or of triangular frames, about which the green cowpea forage is placed and left until cured. The method most used is to let the vines lie in the swath until thoroughly wilted, then rake into windrows, and throw into small, loose cocks, which after drying somewhat can be placed in large cocks. In curing, care should be taken to guard against the loss of leaves, the most valuable part of the plant.

SEED.

The seed of cowpeas is a rich feed, but on account of its high price it is little used, except to a small extent for poultry. Only a few localities produce seed on an extensive scale, and the industry has been found very profitable. In addition to the value of the seed, the benefit to the land and the thrashed vines as a source of feed are important factors to be considered in the production of a seed crop. At the present time the price of seed ranges from \$1.50 to \$3 a bushel, higher prices being obtained for improved varieties, such as Brabham, Groit, and Early Buff.

PASTURE.

The cowpea is an excellent plant for pasture, and with its numerous varieties affords good grazing from early summer until late fall. Cowpeas are very commonly planted in corn, and profit is realized both from the animals pastured and from the increase of soil fertility from the manure and refuse vines. Stock are usually turned on cowpeas about the time the crop is ready for hay.

SILAGE.

Alone the cowpea does not make a first-rate silage. When combined with corn in the proportion of one-fourth cowpeas and three-fourths corn it makes an excellent silage. It keeps well, is readily eaten by all kinds of stock, and has a greater feeding value than corn silage. In general, the practice is to grow corn and cowpeas for the silo in the same row and run them through a silage cutter.

SOILING OR GREEN FEEDING.

As a soiling crop cowpeas are very satisfactory. The great variation in the maturity of varieties makes it possible to have an abundance of succulent green feed throughout the summer and fall. With its high percentage of protein the cowpea is an excellent supplement to less nitrogenous crops, such as corn, sorghum, and millet.

SOIL IMPROVEMENT.

The degree of improvement of soils through the growing of cowpeas depends largely on the use to which the crop is put. The roots and stubble contain about 15 per cent of the total matter of the plant, and therefore where the crop is removed for forage only a small proportion of the fertilizing value is left. A good crop of cowpeas will contain from 60 to 80 pounds of nitrogen to the acre, most of which is drawn directly from the air. Numerous experiments with the cowpea as green manure demonstrate its beneficial effect on the succeeding crop, as shown by the increased yields obtained of corn, cotton, sorghum, and small grains.

HUMAN FOOD.

The cowpea has been used to a considerable extent in the Southern States for human food. It is a most nutritious food stuff, from which a large number of palatable as well as economical dishes can be prepared.¹

¹ See Farmers' Bulletin 559, entitled "Use of Corn, Kafir, and Cowpeas in the Home."

